

MINUTES INFORMATIONAL MEETING INTERNATIONAL CADMIUM ASSOCIATION Wednesday, May 17, 2006 – 10:00 AM

King & Spalding – Conference Room F (2nd Floor) 1700 Pennsylvania Avenue, N.W., Washington DC 20006 USA

1. CALL TO ORDER

The meeting was called to order at 10:05 AM by its Chairman, Graham White of Consider Metal Marketing, Inc. The following persons were in attendance:

REPRESENTATIVE MEMBER COMPANY

Chris Anthinitos

Black & Decker Corporation

Tim Pugh

Black & Decker Corporation

Graham White, Chairman

Consider Metal Marketing, Inc.

Steve Heddle INMETCO
Al Hardies INMETCO

Andrew Green International Zinc Association

David Weinberg Portable Rechargeable Battery Association

STAFF AND GUESTS ORGANIZATION

Angela Bednarek U.S. Department of State
Jane Luxton King & Spalding
Todd Coy Kinsbursky Brothers
George Vary American Zinc Association

Craig Boreiko International Lead Zinc Research Organization

Lidia Regoli International Cadmium Association
Hugh Morrow International Cadmium Association

An attendance roster was circulated for each attendee to sign. The Chairman asked Hugh Morrow to serve as the Secretary Pro-Tempore to record the Minutes of the General Assembly. The Chairman then asked each attendee to introduce himself / herself.

2. REGULATORY AFFAIRS AND MARKET UPDATES

As an informational meeting, this meeting consisted of a series of presentations updating regulatory affairs in Europe, North America, and at the International Level. A short market update was also presented before lunch. After lunch, Angela Bednarek of the U.S. Department of State made a presentation on the U.S. Government's position on some important international issues, most particularly the UNECE Long Range Transboundary Air Pollution Heavy Metals Protocol. Jane Luxton

of King & Spalding made a short presentation on the activities of the North American Metals Council (NAMC) for which she serves as the Secretariat.

Annex I contains the presentation made by Dr. Lidia Regoli with an update of European and International Regulatory Affairs. Annex II presents Hugh Morrow's update on North American and International Regulatory Affairs. Annex III summarizes the latest status of the cadmium market. Annex IV presents the information given by Angela Bednarek of the U.S. Department of State while Annex V is the presentation given by Jane Luxton of King & Spalding and NAMC on the activities of the NAMC.

3. NEXT GENERAL ASSEMBLY OF MEMBERS

The Chairman announced that the next General Assembly of Members of the International Cadmium Asociation would be held on Thursday, October 12, 2006 from 1:00 PM to 4:30 PM, in London, UK during London Metals Exchange Week.

Respectfully Submitted, Approved,

Hugh Morrow Graham White Secretary, Pro-Tempore Chairman

International Chemical Safety Forums The Regulatory Challenge Viewed from Cadmium

ICdA Information Session Washington, D.C., USA 17 May 2006

Lidia Regoli



International Cadmium Association

Outline

- Environmental Regulation in Europe
- International Chemical Safety Forums
- Emissions Trends
- Emission Sources & Contribution
- Summary



Environmental Regulation on Cd in Europe



EU Cadmium Risk Reduction Strategy – the Belgian Proposal

For \risks to the general population (and the environment):

- Makes reference to current and developing legislation
 - Fertilisers Directive (with reduction in Cd content)
 - Sewage Sludge Directive
 - IPPC Directive
 - Water Framework Directive

For I risks to workers:

- Makes reference to the comprehensive guidance put forward by industry 'ICdA/Eurométaux risk management of Cd exposure in workers'
- Suggests an agreement between Industry and the EU Commission on reporting monitoring results

Study on effects of Cd on bone in workers

Cd EU RAR

■ Renal effects:

General population – at 2 Cd μ g/g creatinine Workers – at 5 Cd μ g/g creatinine

■ Bone effects:

General population – at 3 Cd μ g/g creatinine Workers – a level could not be determined

Launch a study on workers exposed to Cd to answer the following:

At what Cd levels to effects to the bone occur? Below detected effects at the kidney??

•Understand the underlying mechanisms that lead to bone effects

New EU Battery Directive

- Conciliation agreement on May 2nd 2006
- Main outcome for cadmium are:
 - ◆ Ban on portable batteries containing Cd.
 - Exemptions are made :
 - emergency systems, medical equipment
 - NiCd batteries in cordless power tools, review four years after entry into force.
 - Industrial and automotive batteries are exempt from ban
- Producers are responsible for the financing collection, treatment & recycling of batteries.
- Recycling efficiency binding target of 75% for NiCds
- Entry into force and transposition the Directive enters into force on the day it is published in the Official Journal (during the course of 2006)

A few thoughts on REACH

- Authorisation
- Annex XIII
- is a list of substances requiring authorisation for use
- will contain substances classified as
 - CMR: Carcinogenic, Mutagenic, and Reprotoxic
 - ◆ PBT : Persistent, Bioaccumulative, and Toxic
 - and substances of « equivalent concern » (now being defined)
- Prioritisation of substances undergoing authorisation ??
 - → Methodology under development (RIP 4.3)

Preparing a dossier for Authorisation

- Industry prepares the dossier for authorisation :
 - ◆ Authorised only if no safer substitutes available
 - ◆ Authorisation is valid for 5 years. And after???
- Industry's dossier should contain :
 - Developed « exposure scenarios » for the use of the substance manufacture, use, end-of-life of the substance
 - Evaluation of risks for these exposure scenarios
 - →Cd RAR, NiCd TRAR, Cd RRS
 - Mandate a substitution plan including economic, technical impact /feasibility
- Methodology under development (RIP 3.7)

International Chemical Safety Forums



Organisation for Economic Cooperation & Development NiCd Battery Recycling Program

- 1990 Cd nominated as pilot substance in Risk Reduction Program
- 1994 OECD Risk Reduction Monograph on Cd Published
- 1995 OECD Workshop on Cd, Saltsjobadan, Sweden
- 1997 OECD Workshop on Ni-Cd Battery Recycling, Lyon, France
- **1998** OECD Workshop on Implementation of Actions to Enhance Ni-Cd Battery Collection and Recycling, Mexico City, Mexico
- 2000 OECD Web Site of Recycling Facilities and Programmes OECD Ni-Cd Battery Recycling Experiences Document OECD Expert Group on Recycling Rate Data OECD Ni-Cd Battery Label

Proposed OECD label for NiCd Batteries



Much over-lap on International Programs on Cd

- Transboundary emissions
 - **♦ UNEP**
 - ◆ UNECE
- Product restrictions
 - **♦ UNEP**
 - **◆ UNECE**
- Assessing the need for global action (Hg, Pb, Cd)
 - ◆ UNEP
 - **♦ IFCS**

Same information needs/evaluation for UNEP, UNECE, IFCS

United Nations Environment Program « assessing the need for global action »

- Heavy Metals Program (Hg, Pb, Cd)
- Decision Forum, February 21-25, 2005, Nairobi
 - ◆ Governing Council Requests Study on Scientific Information on Cd (and Pb) Transport
 - Opted for Voluntary Partnerships Rather Than Binding Agreements on Hg (Coal-Fired Power, Chlor-Alkali, Gold Mining)
- Review workshop September 2006, Geneva, CH

United Nations Economic Cooperation for Europe Convention on Long Range Transboundary Air Pollution

- Covers : Pb, Hg and Cd
- 36 countries signed, 24 ratified
- Entry into force in December 2003
- Applies BAT to point sources to reduce emissions
 - Significant reductions noted since 1990
- Task Force on Heavy Metals formed to revise Protocol
 - Revise the need to add other metals & products
 - Proposes Effects-Based, Critical Loads Approach

Intergovernmental Forum on Chemical Safety « Side event » on heavy metals, Sept 2006 Budapest, H

<u>Purpose</u>

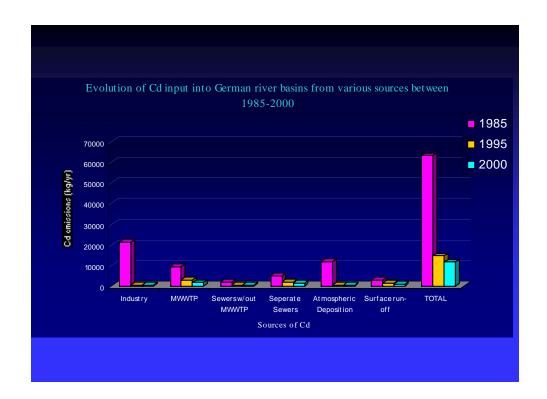
Improve understanding & awareness to negative human and environmental impacts from exposure to Hg, Pb and <u>Cd</u> « with the goal to convince policy makers on the urgent need to start global action to reduce harmful metal emissions »

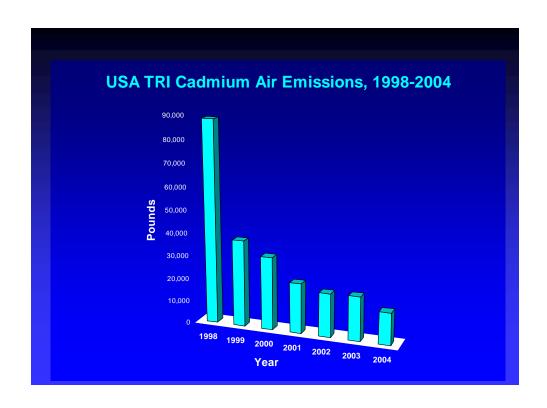
Objectives

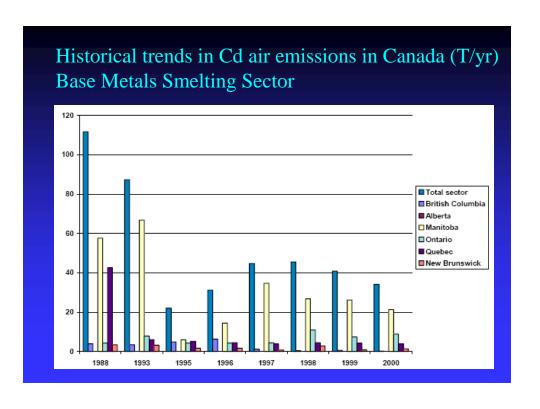
- Present case studies (gold mining, Pb in children, LRTAP)
- Discuss policy responses to challenges posed by Hg, Pb, Cd
- Catalyse discussions on need for global regulatory actions

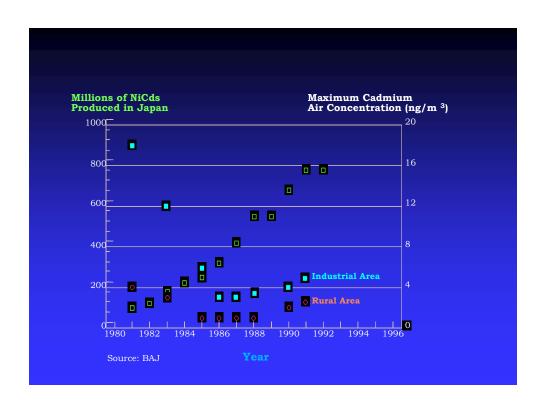
Emission Trends







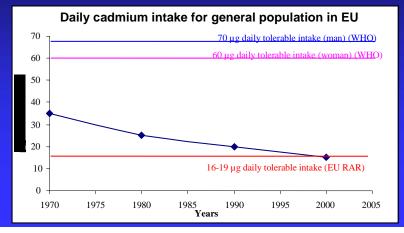




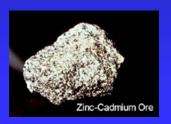
What is the right protection level?

- Scientific evidence brings us to the PTWI
- EU risk assessment decides on a lower level of protection

A risk can always be found – depends on level of protection you want



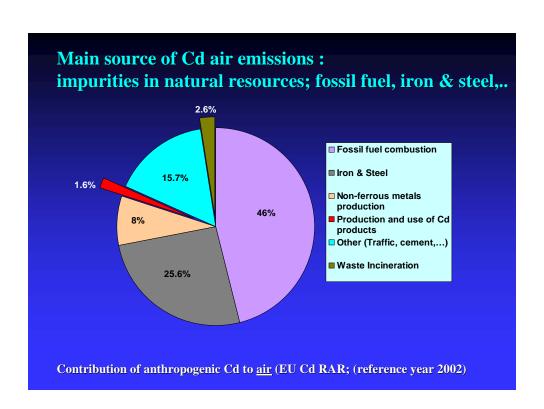
Emission sources and contributions

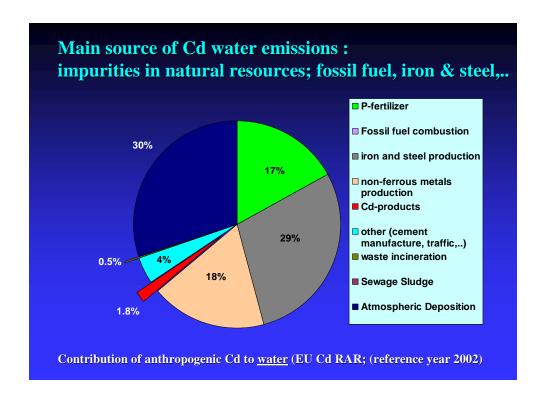


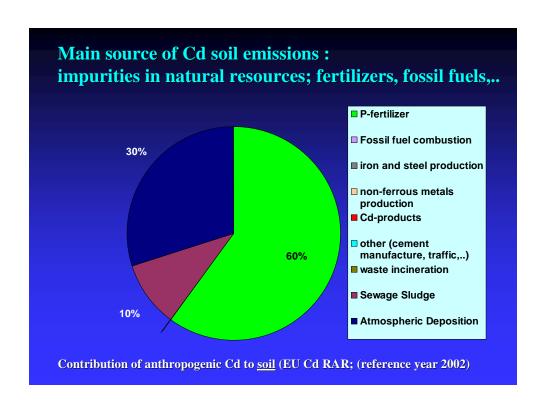
Sources of Cadmium Emissions

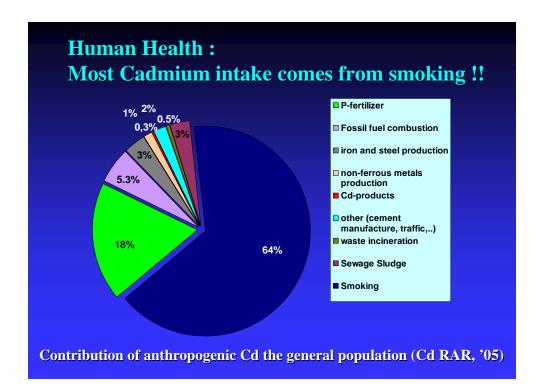
- Natural!
 - ◆ Forest fires, volcanoes, soil erosion, sea spray
 - ◆ Accounts for 20-50% of emissions (Nriagu 1989/ Richardson 2001)
- Anthropogenic
 - ◆ Intentional additions to products
 - Impurities in other materials











Summary

- Cd emissions have reduced drastically in the last 20 yrs
- Cd emissions are stringently controlled by current and upcoming regulation

In the context of International Regulatory Forums ICdA promotes :

- reduction in emissions at industrial sites using BAT°
- collection and recycling of products (NiCd batteries)
- & provides guidance on managing occupational exposure to Cd

°Best Available Technology



Members only website: www.icdamembers.org

Public website: www.cadmium.org

Regulatory Affairs Report North American and International Activities

International Cadmium Association
Informational Meeting

King & Spalding, LLP – 2nd Floor Conference Room 1700 Pennsylvania Avenue, N.W., Washington DC 20006 May 17, 2006

Major North American Cadmium Issues

- U.S. EPA Development of Metals Assessment Framework
- U.S. EPA Toxic Release Inventory (TRI) Lead Rule
- U.S. EPA Integrated Risk Information System (IRIS) Cadmium Assessment
- USA State Programs on Cadmium

US EPA Framework for Inorganic Metals Risk Assessment

- EPA Has Accepted SAB's Comments
- EPA concurs that "use of bioaccumulation factors ... are not scientifically supported ... for the hazard assessment of metals."
- More EPA Review, Issued Fall 2006
- Human Health PBT Issues Remain

U.S. EPA Toxic Release Inventory (TRI) Lead Rule

- District of Columbia Court Ruled That EPA Was Not Required to Follow Methodology in Establishing Lead TRI Reporting Threshold
- Lower Cadmium Reporting Thresholds Exist in Canada for NPRI (10,000 kg to 50 kg)
- "Human Health PBT" Issue May Also Provide EPA TRI Office Basis on Which to Drastically Lower the Cadmium TRI Reporting Threshold

U.S. EPA Integrated Risk Information System (IRIS)

- EPA Database Contains Scientific Positions on Potential Adverse Human Health Effects
- Oral Reference Doses (RfDs)
 - 0.5 µg/kg/day for water
 - 1.0 µg/kg/day for food
- Inhalation Reference Concentrations (RfCs)
- Carcinogenicity Assessment (Inhalation)
 - Human Limited
 - Inhalation Unit Risk = 1.8E-3 per μg/m³

USA State Programs on Cadmium and Products

- Legislation to Lower Cadmium Product Use
 - San Francisco, Washington, Massachusetts, Minnesota, Great Lakes Bi-National Strategy
- Required Establishment and Financing of Cadmium Product Collection and Recycling
 - California(2003,2004, 2006), WEEE Recycling Proposals in About 20 States
- Emissions, Air Quality Standards
 - California Prop 65 and ChRfD, Oregon

USA State Programs on Cadmium and Products

- Increasing Concern That Many USA State Proposals are Based on EU Directives
- Many Proposals Now Invoke the Precautionary Principle as Their Basis
- Many Proposals Require Phase-Outs, Bans, Restrictions of Cadmium Products
- However, Most Enacted Legislation Still Does Not Actually Ban Cadmium Products

International Cadmium Issues

- UNECE LRTAP Heavy Metals
- UNEP Heavy Metals Program
- Intergovernmental Forum on Chemical Safety (IFCS) Proposed Program on Heavy Metals

UNECE LRTAP Heavy Metals Protocol

- Entered into Force 29 December 2003
- Applies to Long-Range Transboundary Air Emissions of Pb, Cd & Hg
- Applies BAT to Reduce HM Emissions of Selected Industries from 1990 Base
- Existing Product Restrictions
 - Pb in Gasoline; Hg in Batteries; None Cd
- Task Force on Heavy Metals to Revise

UNECE LRTAP Task Force on Heavy Metals

- Meeting Held in Ottawa, May 9-12th
- Sufficiency and Effectiveness Review
 - Overview of Heavy Metal Emissions
 - Effects of Deposition of Heavy Metals
 - Modeling and Mapping of Critical Loads
 - Assessments of BATs and ELVs
 - Review of Products and Product Groups
- TFHM Work Plan for 2007

UNECE LRTAP Review of Sufficiency & Effectiveness

- Overview of Emissions
 - Cadmium Air Emissions Decreased by an Average of 51% between 1990 and 2003
 - Sources of Cd Air Emissions Corrected
 - Data Reported on As, Cr, Cu, Ni, Zn, Se
- Effects of Deposition
 - Sweden Insisted on "Soft Waters" Data
 - Sources of Cd Air Emissions Removed

UNECE LRTAP Review of Sufficiency & Effectiveness

- Modeling & Mapping of Critical Loads
 - Very Controversial Technique
 - Accepted by EU, Opposed by USA, Canada
 - Not Scientifically Well Established
- Assessments of BATs and ELVs
 - Most Cd ELVs in Force = $50-200 \mu g/m^3$
 - ELVs Proposed for BAT on Municipal Waste, Medical Waste and Hazardous Waste Incinerators = 5-50 µg/m³

UNECE LRTAP Review of Sufficiency & Effectiveness

- Products and Product Groups
 - Essential Agreement on Text for Mercury Containing Products Except for Dental Amalgams (USA Intervention)
 - Disagreement on Cadmium and Lead Containing Products Not Specifically Mentioned in Annexes VI and VII
 - Opposing Views Presented in Two Annexes (EU vs. USA/Canada/Industry)

UNECE LRTAP Heavy Metals Work Plan for 2007

- Complete Technical Work on the Application of Effects-Based Approach
- Further Develop ELVs and Time Scale for Application of BATs and ELVs
- Prepare Technical Study of Pb, Cd, Hg Source Categories Not Covered in Protocol
- Carry Out Work As Directed by the UNECE LRTAP Working Group on Strategies and Review (WGSR)
- Hold Fourth Meeting in Spring 2007

UNEP Heavy Metals Program

- Information Submitted by a Total of 36 Parties and Organizations
- Draft Scientific Review on Cd to be Prepared for Working Group by July
- Working Group ICdA, ILZRO, ICMM
- Scientific Reviews to be Finalized by Working Group by September
- Finalize Report for UNEP Governing Council (GC) by October 2006
- Report Considered by GC in February

IFCS Proposed Program on Heavy Metals

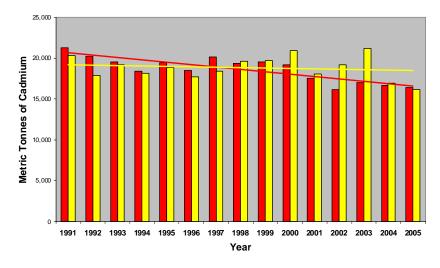
- IFCS V To Be Held in Budapest, Hungary, September 24-29, 2006
- Case Studies on Adverse Effects of Heavy Metals in Third World Nations
- "Goal to convince policy makers on the urgent need to start global action"
- Duplicates UNECE, UNEP, SAICM Work
- ICMM / ICdA Will Participate

Cadmium Market Report

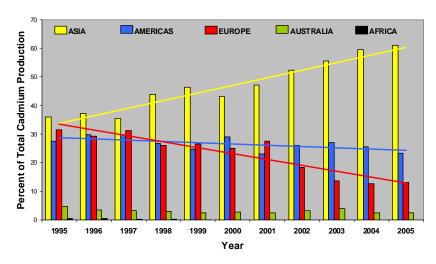
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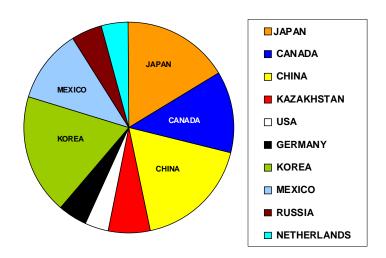
Cadmium Production and Consumption, 1991 - 2005



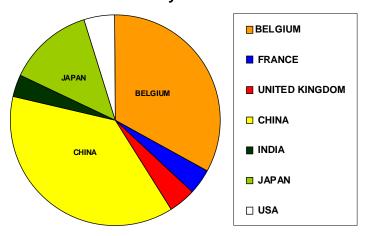
Geographical Trends in Cadmium Production



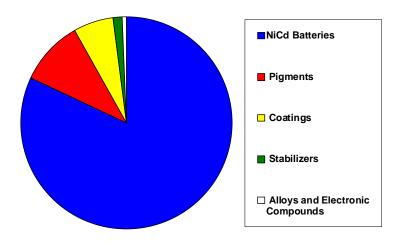
2005 Cadmium Production by Country



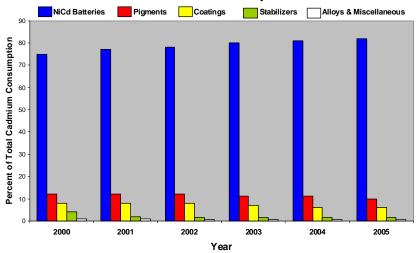
2005 Major Cadmium Consumption by Country



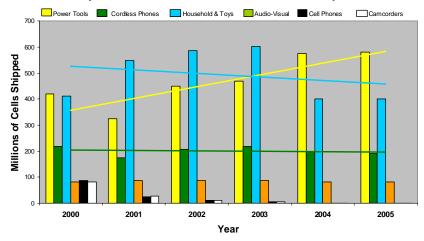
2005 Cadmium Consumption by Applications



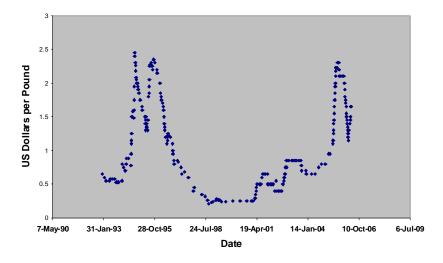
Trends in Cadmium Consumption Patterns



Worldwide Consumer NiCd Shipments (Takeshita - 2003, 2004, 2005, 2006)



Metal Bulletin 99.99% Cadmium Price, 1993 - 2006



Cadmium Issues in the Heavy
Metals Protocol to the Convention
on Long-Range Transboundary Air
Pollution (LRTAP)

Angela Bednarek

Office of Environmental Policy U.S. Department of State

LRTAP Heavy Metals Protocol

Objective – to control emissions of heavy metals caused by anthropogenic activities that are subject to long-range transboundary atmospheric transport and are likely to have significant adverse effects on human health.

- Obligations
 - Reduce total annual emissions from level of emissions in reference year specified.
 - Apply BAT for each new stationary source
 - Apply limit values for new stationary sources or alternative emission reduction strategies.
 - Apply BAT for existing sources (if technically and economically feasible).
 - Apply limit values for existing sources (if technically and economically feasible) or alternative emission reduction strategies.
 - Apply product control measures in accordance with Annex VI (none for Cd).
 - Develop and maintain emission inventories.

- Annex II Stationary Source Categories – Examples:
 - Combustion installations with a net rated thermal input exceeding 50 MW.
 - Municipal waste incineration with a capacity exceeding 3 tons/hour or in accordance with national legislation.

- Annex III Guidance on BAT for stationary source categories.
 - Options
 - E.g., appropriate environmental techniques
 - Control techniques (e.g., fugitive emission control)
 - Sectors
 - Primary and secondary iron and steel industry
 - Primary and secondary non-ferrous metal industry
 - Cement industry
 - Municipal, medical and hazardous waste incineration

- Annex IV Time-scales
 - New stationary sources two years after the date of entry into force of the Protocol.
 - Existing stationary sources eight years after the date of entry into force of the Protocol. In some circumstances, this period may be extended.

- Annex V Limit values for controlling emissions from major stationary sources.
 - Values for specific heavy metals or values for emission of particulate matter.
 - Examples: municipal, medical and hazardous waste incineration, combustion of fossil fuels, cement industry.

- Annex VI Product Control Measures.
 - None for cadmium products.

- Annex VII Guidance on Product Management Measures
 - Parties may consider appropriate product management measures where warranted as a result of the potential risk of adverse effects on human health or the environment, taking into account all relevant risks and benefits of such measures, to effect overall reduction of harmful effects.
 - Examples: Economic incentives, recycling, substitution, product labeling.

- Issues
 - Sufficiency and Effectiveness Review
 - Effects-based approach.
 - Adding substances, product control measures, or product/product groups to the Protocol.

- Issues
 - Sufficiency and Effectiveness Review
 - Deposition
 - Emissions
 - BAT
 - Products and product groups
 - Critical loads
 - Changing economic conditions

- Issues
 - Sufficiency and Effectiveness Review
 - Maintaining focus on contributions to air emissions.
 - Maintaining quality reports with accurate technical information and adequate referencing.

Issues

- Effects-based approach.
 - S&E review: Take into account the extent to which a satisfactory basis exists for the application of an effects-based approach.
 - Alternative ways of regulating.
 - Significant uncertainties and data gaps limit this approach.

- Issues
 - Adding substances, product control measures, or product/product groups to the Protocol.
 - Adopted similar procedures to LRTAP POPs Task Force.
 - No proposals yet.

- Adding substances, product control measures and product/product groups – Review process:
 - Proposed amendments submitted in writing to Secretariat at least ninety days in advance of Executive Body meeting.
 - Amendments adopted by consensus.
 - Proposing party shall provide information specified in Decision 1998/1.
 - Proposed amendments evaluated in accordance with Decision 1998/1.

- Adding substances, product control measures and product/product groups:
 - Review Process
 - Track A should substance be considered a heavy metal, product measure or product or product group?
 - Track B Strategy for managing the substance.
 - Ad hoc peer review teams.

- Adding substances, product control measures and product/product groups – Review process:
 - Issues
 - Science-based, deliberative review process.
 - Reviews of substances are unbiased and based on accurate, up-to-date information.
 - Consistent interpretation of criteria.
 - Focus on long-range transboundary air pollution.

Activities of the North American Metals Council

International Cadmium Association
Informational Meeting
May 17, 2006

Jane C. Luxton (202) 626-2627 jluxton@kslaw.com

King & Spalding

Background on NAMC

Founded: June 2004



Mission Statement:

NAMC provides leadership and plays an advocacy role on select issues of strategic importance to the metals industry. NAMC's efforts concentrate on multi-metals issues where a cohesive industry voice is beneficial. NAMC works to complement and coordinate rather than duplicate the work of other organizations. NAMC is structured in a way that maintains flexibility and allows for rapid mobilization to address key issues and initiatives as they arise. NAMC's approach is grounded in sound science and is supported by active engagement with the leadership of key national and international organizations (regulatory and non-regulatory).

Background on NAMC (cont'd)

Members:

The Aluminum Association American Iron & Steel Institute American Zinc Association ASARCO LLC

Association of Battery Recyclers
Battery Council International
Copper Development Assoc., Inc.
The Doe Run Company
Edison Electric Institute
Ethyl Corporation
The Fertilizer Institute
IPC, The Assoc. Connecting Elec.

Horsehead Corporation International Manganese Institute Kennecott Utah Copper Mining Association of Canada
National Mining Association (NMA)
Newmont Mining Corporation
Nickel Institute
Non-Ferrous Founders' Society
Noranda Inc./Falconbridge Limited
Phelps Dodge Corporation

Phelps Dodge Corporation
Photo Marketing Association Int'l
Rio Tinto

Society of Glass & Ceramic Decorators Sporting Arms & Ammun. Manf. Inst. Teck Cominco Treated Wood Council Umicore USA Inc.

Website: http://www.namc.or

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Key NAMC Activities

- Metals Framework: formative issue for NAMC
 - December 2000 EPA commitment to develop metals framework
 - Several rounds of comments, EPA issue papers, workshop
 - 2 SAB reviews, most recent completed 1/06
 - EPA Administrator's statement (4/06), recognizing:
 "bioaccumulation and bioconcentration factors are not scientifically supported for use as generic threshold criteria for the hazard assessment of metals."

Key NAMC Activities (cont'd)

- · Metals Framework: work remaining
 - Completion of Framework Fall 2006
 - Human health bioaccumulation theory work underway with EPA (implications for cadmium)
 - TRI Lead Rule: classification of lead as a "PBT chemical" - work underway to correct this conclusion

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Active Engagement with USG as a Voice for North American Metals Sector

- SAICM (in coordination with ICMM)
- REACH (in coordination with ICMM and Eurometaux)
- UNEP
- LRTAP HMP (critical loads, other issues)
- CEC

Legislative Efforts

- Support for Metals Center (bioavailability issues)
- POPs ratification efforts (TSCA amendments) (in coordination with ACC, other groups)
- Defense Appropriations bill (inadvertent definitional problems)



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State Initiatives

- Washington State PBT Program
- · Florida arsenic modeling



Issues on the Horizon

- REACH implementation for North American producers and downstream metals users
- GHS legislation (OSHA) and coordination with REACH
- SMOC
- Canadian DSL, WQ standards
- ?

